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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

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Nicholas Bernard BODY, et al.

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Examiner: Thomas J. MULLEN

Filed: November 09, 2001

For: IMPROVEMENTS IN OR RELATING TO CONTROL AND/OR MONITORING
SYSTEMS

SUBMISSION OF SUBSTITUTE SPECIFICATION

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Commissioner for Patents
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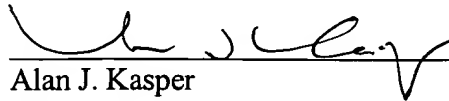
Technology Center 2600

Sir:

Pursuant to your request in the Office Communication dated December 24, 2003, we are enclosing a substitute specification as a "clean copy". We are also enclosing a marked-up copy of the original specification. No new matter has been included.

The Examiner is respectfully requested to acknowledge receipt of this substitute Specification.

Respectfully submitted,


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IMPROVEMENTS IN OR RELATING TO CONTROL AND/OR
MONITORING SYSTEMS

ACCESS CONTROL DEVICE WITH ELECTRONIC IDENTIFICATION
AND AUTO COMMUNICATION CAPABILITY

- 5 This invention relates to improvements in control and/or monitoring systems.

Reference throughout the specification shall now be made to the present invention in relation to security systems which are in fact control and/or monitoring systems.

BACKGROUND ART

- An increasing number of security systems are being installed world-wide. Further,
10 existing security systems are continually being upgraded as technology becomes smarter, more monitoring/control devices are available, and the desire for increased security increases.

- There is often a need to control access to a door or building by using an access control system that uses electronic means such as a token, badge or card to identify
15 persons allowed access. Sometimes the means of electronic identification is a PIN number that a person is required to enter via a keyboard. Usually, with the appropriate identification is received, access is automatically granted.

For ease of reference the access control system will now be referred to as a card reader.

- 20 There a number of situations whereby the wrong identification is received, or no identification means is received at all. For example, a person may enter in the

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wrong PIN number, have an out of date identification device, may not have the identification device with them or may not have been ~~issued~~provided with such a device in the first place.

5 In the above circumstances, it is desirable for that person to have audio communication with an operator of the security system. That operator can then determine whether access can be granted and subsequently either allow or ~~to deny~~ that person access. This audio communication is typically supplied by a separate intercom device which usually is manufactured by a separate manufacturer ~~to that~~ from one who would normally manufacture the card reader.

10 This is obviously an undesirable situation.

As these devices are from separate manufacturers, there is no consistency in the data format. Thus, the devices do not normally share ~~in the~~ data between them and two separate communication networks are required to be run from the devices to the main security system.

15 Also, the devices are required to be installed separately and can take up considerable space in the process.

Further, it is not possible to have any interactions between the devices. ~~E.g.~~For example, someone swiping their card does not have immediate access to intercom functions.

20 It can ~~been~~ seen that having separate devices means they are expensive to install and maintain because of ~~the double up~~ the reproduction of components and cabling.

Thus it is the object of the present invention to address the above problems, or at least to provide the public with ~~the use of a~~ useful choices.

DISCLOSURE OF INVENTION SUMMARY OF THE INVENTION

According to one aspect of the present invention there is provided an access control
5 device including an electronic identification means,

characterised in that

the access control device also includes an audio communications device.

BRIEF DESCRIPTION OF THE DRAWING

Fig. 1 is an illustration relevant to the present invention.

10 **DESCRIPTION OF THE PREFERRED EMBODIMENTS**

A basic system configuration of a control monitoring system to which the present invention applies is illustrated in the figure. The system includes a command center 40 that comprises a Server 40a and at least one work station 41. The server is coupled to a t least one access controller 42 via an ethernet connection. The access
15 controller has bi-directional links via a high speed RS 485 network to a plurality of peripherals, including field devices 48 that couple to magnetic step reading 43 or proximity reader 44.

The RS 485 network also couples an output panel 45, a DUC 46 or an intercom 47 to the access controller 42. An output panel 45, also connects to the network.

According to further aspect of the present invention there is provided a control and/or monitoring system which incorporates an access control device as described above.

According to a further aspect of the present invention there is provided a method of
5 installing a control and/or monitoring system characterised by the step of installing an access control device as described above.

Reference throughout the specification should now be made to the access control device 43, 44, 45, 46, 47, 48 as being a 'plus reader'. It should be appreciated that this term is used for reference only and should not be seen as limiting.

10 The electronic identification means may come in a number of forms and may include a single component or a number of different components. For example, the electronic identification means may be a card reader 43/41. This may be in the form of a swipe card device 43, or perhaps in some embodiments a proximity smart card reader 44/48.

15 The electronic identification means may include a key pad 44A ~~into which by means of which~~ alpha/numeric or some other form of data can be entered. This may be in addition to or instead of a card reader.

In preferred embodiments the key pad has back lighting so that it can be read in the dark.

20 Other embodiments of the present invention may have the electronic identification means remotely sense some physical attribute of the person wishing to gain access. For example, it may use a fingerprint or retina scan or other biometric devices.

In fFurther embodiments of the present invention the audio communications device would be in the form of an intercom 47 and ~~should now~~ will be referred to as such throughout the specification. Again this term should not be seen in any way as limiting.

- 5 Preferably, the person situated by the plus reader can press a function key to operate the intercom 47 and communicate with the operator of the security system.

Preferably also, the operator can communicate back through the intercom 47.

- In some embodiments of the present invention the operator can choose when to turn on the intercom 47. For example, in the area close to the plus reader there may be
10 evidence ~~on~~ of an alarm or duress situation such as screaming. The operator can then turn on the intercom and listen to this sound.

In some embodiments, the operator may also record any of the audio.

- The intercom 47 may also be able to provide other audio services. For example, an intercom may play pre-stored audio clips to the user. For example, the user may
15 swipe the card and the security system may determine that there is a message waiting for that particular user. This message may be retrieved from whatever storage system in which it is kept and played for the user.

The intercom 47 may also be able to play emergency evacuation audio clips. For example, 'Fire, please exit immediately through exit door'.

In some embodiments the present invention the plus reader may also include a display which may also display messages. In preferred embodiments, the display is a graphical LCD display with back lighting.

The intercom 47 may also be used as part of ~~the a company~~ paging system. It can
5 ~~also be used to provide voice prompts for operations and disability situations.~~

While the data from the intercom 47 may be in any suitable format that can be used in any security system, it is preferably in digital format. This allows for easier integration with other data received through the security system and other peripheral devices and ~~with~~ for inter-action with the electronic identification means. The
10 digital data is also easier to store and process.

In some embodiments of the present invention, the data from the intercom may be compressed which allows for easier transmission and the use of a smaller bandwidth communication system.

It is envisaged that the person at the card reader will generate an event or signal
15 when pressing a designated function key on the reader that includes the intercom. This event or signal may be recorded by the security system ~~and~~ as well as alerting the operator of the security system. While the operator is talking into or listening to the intercom the conversation may be optionally recorded to the operator's workstation or elsewhere.

20 In some embodiments, an occurrence of certain events can trigger the transmission of compressed audio data from the intercom such that the security system will have recorded a number of seconds of sound after the event. This means that the security

system does not necessarily record sound from an intercom continuously, but only source sound from around the time of events that are of interest.

Data from the intercom 47 and the card reader 43/44 can be indexed to data received from other peripherals such as video cameras 46.

- 5 It should be appreciated that a number of technical issues needed to be overcome to ensure that the communications system and the plus reader can handle the different data needs of the systems.

For example, a typical card reader only requires communications bandwidth of maybe 40K bits per second to perform normal access control functionality.

- 10 However, to handle the communications from the intercom 47 and other peripheral devices such as a camera 46, the communications systems need at least four times that bandwidth. For example, in one particular embodiment of the present invention, the bandwidth of 187.5K bps is required.

- The human ear is very sensitive to sound quality. It should also be appreciated that
15 in the security system, sound quality is paramount, not only in communicating instructions, but also with recorded sound happening around an 'event'. Audio dropouts or loss in security systems is something to be avoided.

- Thus, the applicants have in preferred embodiments of the invention designed a system that guarantees to poll each of plus readers 42 at a minimum of 10 times per
20 second. This gives the audio quality desired.

It should now be appreciated that the present invention offers a number of advantages over the prior art.

The incorporation of an electronic identification such as a card reader 43/44 along with an audio communications device such as an intercom 47 provides cost savings and several improvements of functionality.

5 Firstly, common installation costs are far cheaper as only one device has to be installed and one set of cabling as opposed to two.

Secondly, integration of data can be readily achieved with the two devices in the one unit. Audio information can be played to the card user which is directly linked to the identification of that particular card user.

10 Visual display of various messages combined with an audio display can be readily communicated to a card holder.

The operator of a security system can also provide integrated control functions and again readily communicate with the person positioned by the access control devices.

Data received by the access control device with the audio or identification data can be readily integrated.

15 With the embodiment of the present invention which uses digital intercom, data can be readily processed with digital data coming in from other peripheral devices such as video cameras 46.

Aspects of the present invention have been described by way of example and it should be appreciated that modifications and additions may be made thereto without
20 departing from the scope of the appended claims.



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ACCESS CONTROL DEVICE WITH ELECTRONIC IDENTIFICATION

AND AUTO COMMUNICATION CAPABILITY

AUDIO

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There is often a need to control access to a door or building by using an access control system that uses electronic means such as a token, badge or card to identify persons allowed access. Sometimes the means of electronic identification is a PIN number that a person is required to enter via a keyboard. Usually, with the appropriate identification is received, access is automatically granted.

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There a number of situations whereby the wrong identification is received, or no identification means is received at all. For example, a person may enter in the wrong PIN number, have an out of date identification device, may not have the

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identification device with them or may not have been provided with such a device in the first place.

In the above circumstances, it is desirable for that person to have audio communication with an operator of the security system. That operator can then
5 determine whether access can be granted and subsequently either allow or deny that person access. This audio communication is typically supplied by a separate intercom device which usually is manufactured by a separate manufacturer from one who would normally manufacture the card reader.

This is obviously an undesirable situation.

10 As these devices are from separate manufacturers, there is no consistency in the data format. Thus, the devices do not normally share data between them and two separate communication networks are required to be run from the devices to the main security system.

Also, the devices are required to be installed separately and can take up considerable
15 space in the process.

Further, it is not possible to have any interactions between the devices. For example, someone swiping their card does not have immediate access to intercom functions.

It can be seen that having separate devices means they are expensive to install and
20 maintain because of the reproduction of components and cabling.

Thus it is the object of the present invention to address the above problems, or at least to provide the public with a useful choice.

SUMMARY OF THE INVENTION

According to one aspect of the present invention there is provided an access control
5 device including an electronic identification means, characterised in that the access control device also includes an audio communications device.

BRIEF DESCRIPTION OF THE DRAWING

Fig. 1 is an illustration relevant to the present invention.

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The electronic identification means may include a key pad 44A by means of which alpha/numeric or some other form of data can be entered. This may be in addition to or instead of a card reader.

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15 example, 'Fire, please exit immediately through exit door'.

In some embodiments the present invention the plus reader may also include a display which may also display messages. In preferred embodiments, the display is a graphical LCD display with back lighting.

The intercom 47 may also be used as part of a paging system.

20 While the data from the intercom 47 may be in any suitable format that can be used in any security system, it is preferably in digital format. This allows for easier

integration with other data received through the security system and other peripheral devices and for interaction with the electronic identification means. The digital data is also easier to store and process.

5 In some embodiments of the present invention, the data from the intercom may be compressed which allows for easier transmission and the use of a smaller bandwidth communication system.

It is envisaged that the person at the card reader will generate an event or signal when pressing a designated function key on the reader that includes the intercom. This event or signal may be recorded by the security system as well as alerting the
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